Space Weather Highlights **SWPC PRF 2213**
22 January - 28 January 2018 **29 January 2018**

Solar activity was at very low levels. The largest event of the period was a B9 flare from plage Region 2696 (S13, L=123). No Earth-directed CMEs were observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal levels on 22-25 Jan and moderate levels from 26-28 Jan. A maximum flux of 348 pfu was observed at 27/2010 UTC.

Geomagnetic field activity was at predominately quiet to unsettled levels with an isolated active interval observed late on 24 Jan. Quiet to unsettled periods were observed on 22 Jan and 24-26 Jan due to a pair of weak negative polarity CH HSS. Quiet levels were observed on 23 Jan and 27- 28 Jan.

Space Weather Outlook
29 January - 24 February 2018

Solar activity is expected to be at very low levels throughout the outlook period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels throughout the outlook period.

Geomagnetic field activity is expected to be at quiet to unsettled levels on 29-31 Jan, 04-05 Feb, 09-11 Feb, 15-18 Feb and 20-22 Feb, with isolated active periods likely on 10 Feb. This activity is due to influence from recurrent CH HSSs. Mostly quiet conditions are expected for the remainder of the outlook period.

Daily Solar Data

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10^{-6} hemi.)	X-ray Background Flux		Flares						
						X-ray			Optical				
						C	M	X	S	1	2	3	4
22 January	70	0	0	A2.7	0	0	0	1	0	0	0	0
23 January	71	0	0	A2.7	0	0	0	0	0	0	0	0
24 January	70	0	0	A2.5	0	0	0	0	0	0	0	0
25 January	70	0	0	A2.3	0	0	0	0	0	0	0	0
26 January	70	0	0	A2.4	0	0	0	0	0	0	0	0
27 January	69	0	0	A2.3	0	0	0	0	0	0	0	0
28 January	69	0	0	A2.1	0	0	0	0	0	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ^{2} -day -sr)			Electron Fluence (electrons/cm^2 -day -sr)		
	>1 MeV	>10 MeV	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
22 January	6.6e+05	1.8e+04	3.7e+03	8.8e+06		
23 January	4.5e+05	1.6e+04	3.6e+03	4.2e+07		
24 January	8.9e+05	1.6e+04	3.6e+03	3.8e+07		
25 January	6.3e+05	1.6e+04	3.5e+03	2.0e+06		
26 January	3.8e+05	1.6e+04	3.4e+03	5.3e+06		
27 January	3.4e+05	1.6e+04	3.4e+03	7.1e+06		
28 January	3.6e+05	1.6e+04	3.5e+03	7.7e+06		

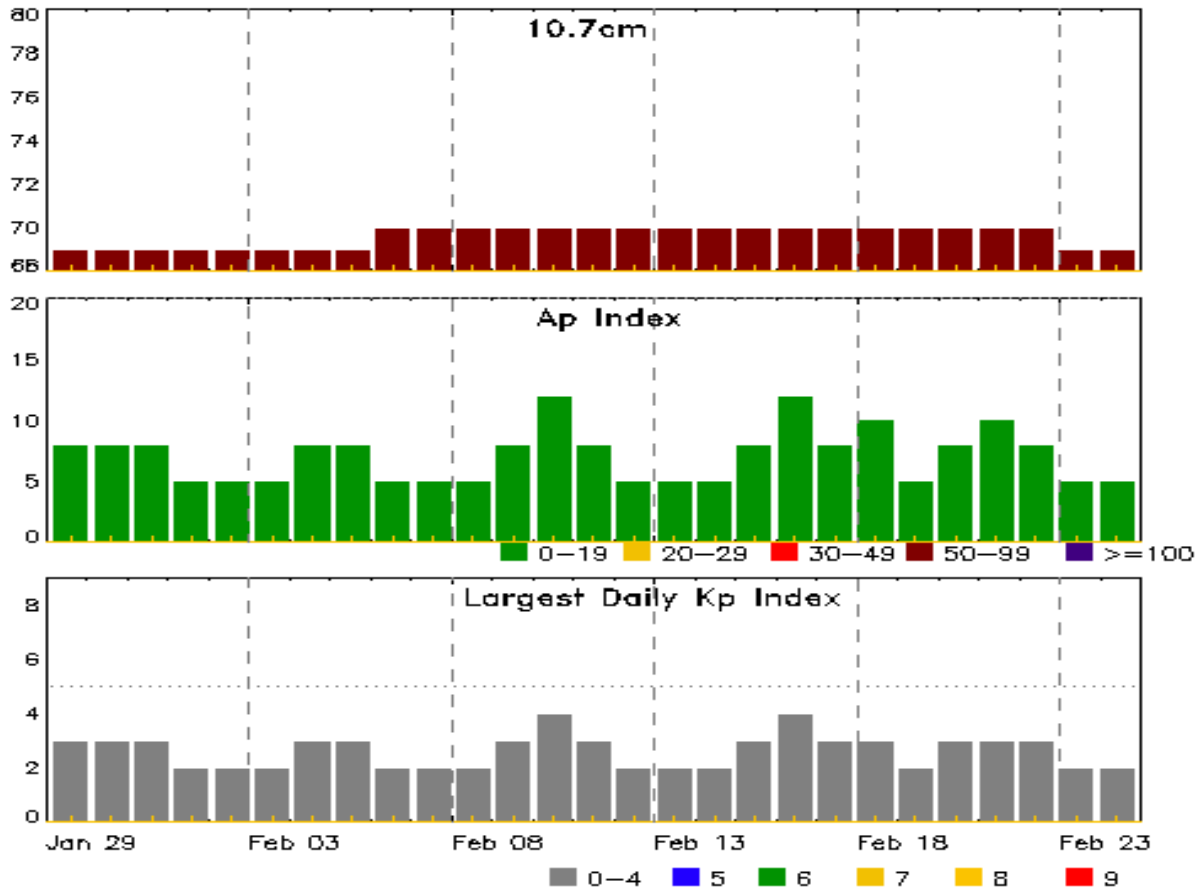
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
22 January	8	2-2-2-2-2-2-3-2	9	1-2-3-3-3-1-2-2	12	3-3-2-2-1-2-3-3
23 January	3	2-1-0-1-1-1-1-0	4	1-1-1-2-3-0-0-0	4	2-2-1-1-1-1-0-0
24 January	6	0-1-1-1-2-3-1-3	13	0-0-0-1-5-5-1-1	9	0-1-0-1-3-3-1-4
25 January	9	3-3-2-2-1-2-2-2	11	2-1-2-3-2-4-3-1	10	3-3-2-2-1-3-2-2
26 January	7	3-2-3-1-1-2-1-1	5	2-2-3-2-0-0-0-1	8	3-2-3-1-0-1-2-2
27 January	5	2-2-1-2-1-1-1-1	7	2-1-1-3-3-1-1-1	6	3-2-1-2-1-1-2-1
28 January	2	1-1-0-0-1-1-1-1	5	1-0-0-3-3-2-1-0	5	1-1-0-1-2-1-1-2

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
22 Jan 2002	WARNING: Geomagnetic K = 4	22/2005 - 23/0300
23 Jan 1847	ALERT: Electron 2MeV Integral Flux >= 1000pfu	23/1830
24 Jan 2204	WARNING: Geomagnetic K = 4	24/2205 - 25/0600
25 Jan 0215	ALERT: Geomagnetic K = 4	24/2359
26 Jan 0151	WARNING: Geomagnetic K = 4	26/0150 - 0900

Twenty-seven Day Outlook



Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index
29 Jan	69	8	3	12 Feb	70	5	2
30	69	8	3	13	70	5	2
31	69	8	3	14	70	5	2
01 Feb	69	5	2	15	70	8	3
02	69	5	2	16	70	12	4
03	69	5	2	17	70	8	3
04	69	8	3	18	70	10	3
05	69	8	3	19	70	5	2
06	70	5	2	20	70	8	3
07	70	5	2	21	70	10	3
08	70	5	2	22	70	8	3
09	70	8	3	23	69	5	2
10	70	12	4	24	69	5	2
11	70	8	3				

Energetic Events

	Time			X-ray		Optical Information			Peak Radio Flux		Sweep Freq Intensity	
Date	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	II	IV

No Events Observed

Flare List

	Time				Optical		
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
22 Jan	0237	0257	0320	B9.5	SF	S13W58	2696

Region Summary

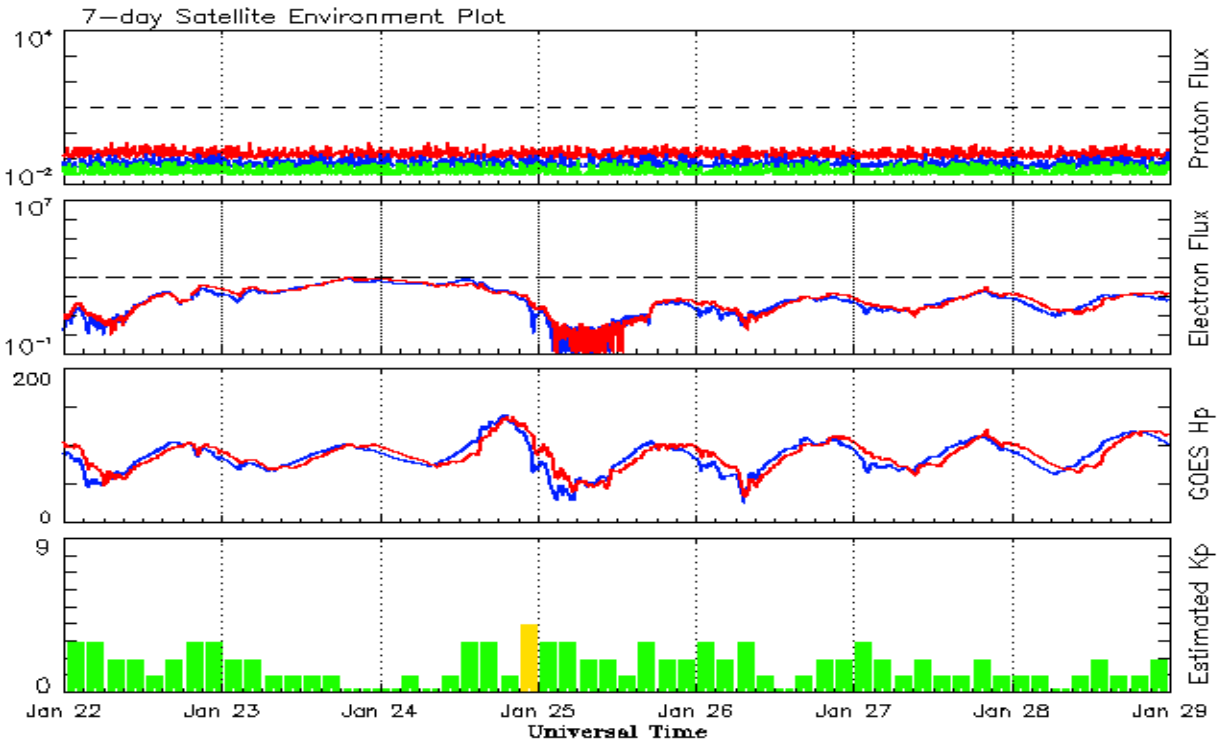
	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
		Region 2696													
15 Jan	S11E25	123	20	2	Bxo	2	B								
16 Jan	S13E12	123	30	2	Cro	3	B								
17 Jan	S13W02	124	20	2	Bxo	2	B								
18 Jan	S12W15	124	10	2	Bxo	2	B				2				
19 Jan	S12W29	124	10	1	Axx	1	A								
20 Jan	S12W42	125	plage												
21 Jan	S12W55	125	plage												
22 Jan	S12W69	125	plage								1				
23 Jan	S12W83	126	plage												
24 Jan	S12W97	127	plage												
								0	0	0	3	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 124

Recent Solar Indices (preliminary)
Observed monthly mean values

	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth
Month	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
				2016					
January	50.4	34.2	0.67	51.4	32.6	103.5	99.9	10	12.3
February	56.0	33.8	0.61	49.6	31.5	103.5	98.1	10	12.0
March	40.9	32.5	0.80	47.7	30.2	91.6	96.6	11	11.8
April	39.2	22.7	0.58	45.0	28.7	93.4	95.3	10	11.8
May	48.9	30.9	0.64	42.1	26.9	93.1	93.2	12	11.7
June	19.3	12.3	0.65	39.0	24.9	81.9	90.4	9	11.4
July	36.8	19.4	0.53	36.5	23.1	85.9	87.7	10	11.2
August	50.4	30.1	0.60	34.2	21.6	85.0	85.5	10	11.2
September	37.4	26.8	0.72	32.1	19.9	87.8	83.7	16	11.3
October	30.0	20.0	0.67	31.1	18.9	86.1	82.5	16	11.6
November	22.4	12.8	0.57	29.4	17.9	78.7	81.1	10	11.6
December	17.6	11.1	0.64	28.1	17.1	75.1	80.0	10	11.4
				2017					
January	28.1	15.7	0.55	27.3	16.7	77.4	79.4	10	11.3
February	22.0	15.8	0.71	25.5	15.9	76.9	78.7	10	11.3
March	25.4	10.6	0.42	24.6	15.4	74.6	78.6	15	11.5
April	30.4	19.4	0.64	24.3	14.9	80.9	78.4	13	11.5
May	18.1	11.3	0.62	23.1	14.0	73.5	77.7	9	11.3
June	18.0	11.5	0.64	22.0	13.3	74.8	77.3	7	11.3
July	18.8	10.7	0.59			77.7		9	
August	25.0	19.6	0.80			77.9		12	
September	42.2	26.2	0.62			92.0		19	
October	16.0	7.9	0.49			76.4		11	
November	7.7	3.4	0.44			72.1		11	
December	7.6	4.9	0.64			71.5		8	

Note: Values are final except for the most recent 6 months which are considered preliminary. Cycle 24 started in Dec 2008 with an RI=1.7.



Weekly Geosynchronous Satellite Environment Summary
Week Beginning 22 January 2018

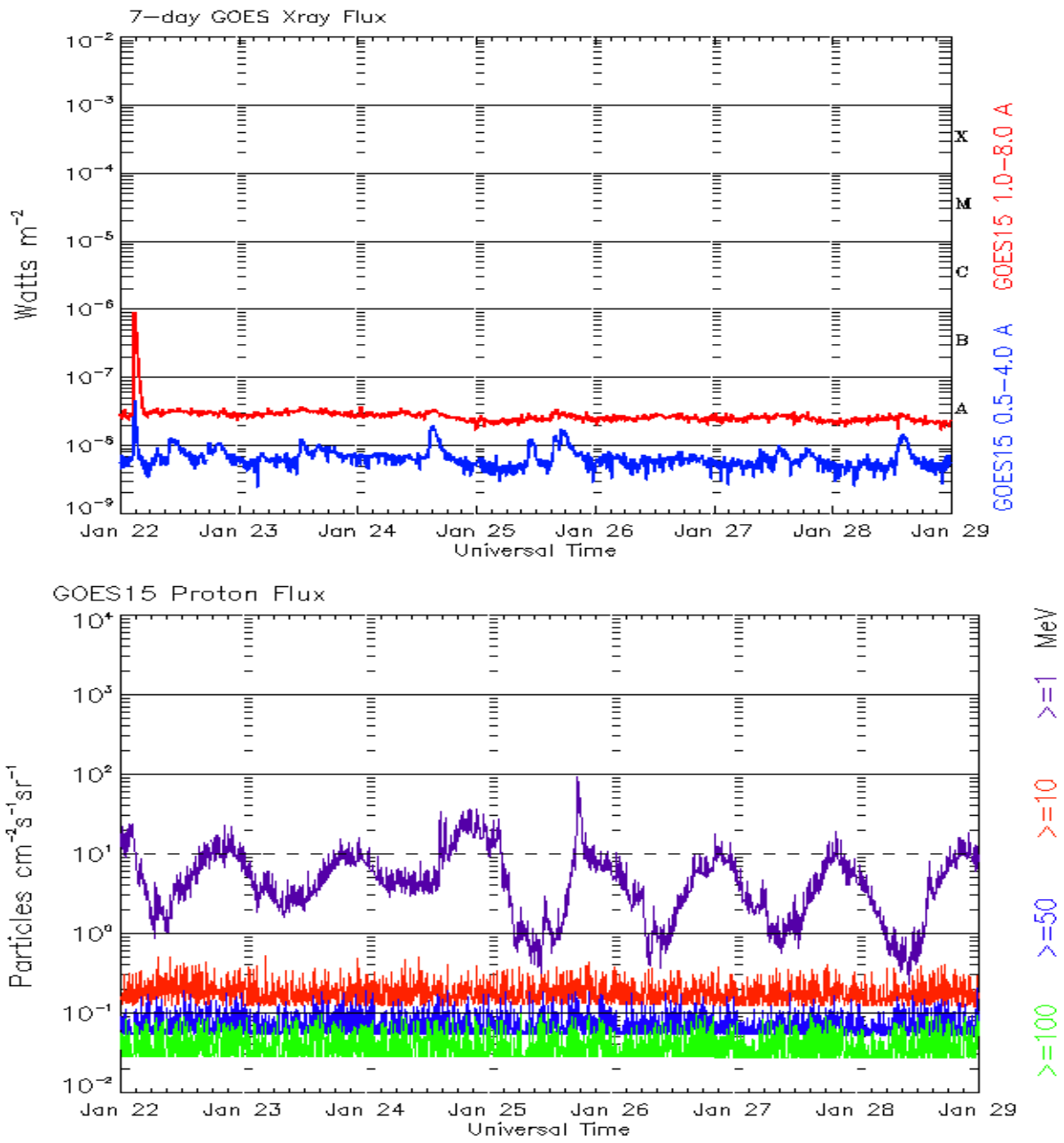
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm^2-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm^2-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

The Estimated 3-hour Planetary Kp-index is derived at the NOAA Space Weather Prediction Center using data from the following ground-based magnetometers: Boulder, Colorado; Chambon la Foret, France; Fredericksburg, Virginia; Fresno, California; Hartland, UK; Newport, Washington; Sitka, Alaska. These data are made available thanks to the cooperative efforts between SWPC and data providers around the world, which currently includes the U.S. Geological Survey, the British Geological Survey, and the Institut de Physique du Globe de Paris.

The data included here are those now available in real time at the SWPC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are 'global' parameters that are applicable to a first order approximation over large areas. H parallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.



Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 22 January 2018

The x-ray plots contains five-minute averages x-ray flux (Watt/m^2) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged intergral flux units (pfu = protons/cm^2 -sec -sr) as measured by the primary SWPC GOES Proton satellite for each of the energy thresholds: >1, >10, >30, and >100 MeV. The P10 event threshold is 10 pfu at greater than 10 MeV.

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Notice: The 27-day Outlook, Satellite Environment, X-ray and Proton plots have been redesigned. Comments and suggestions are welcome SWPC.Webmaster@noaa.gov

The Weekly has been published continuously since 1951 and is available online since 1997.

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